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Idiopathic adult colo-colonic intussusception: Case report and review of the literature

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ABSTRACT

INTRODUCTION: Acute colonic intussusception occurring in the absence of organic cause is uncommon in adults.
PRESENTATION OF CASE: We report acute colonic intussusception in a 46-year-old female; clinical evidence of a palpable mass, abdominal pain and bloody mucoid stools appeared a few hours after hospital admission. Multislice CT-scan confirmed the clinical diagnosis and surgical exploration revealed right colonic obstruction caused by intussusception of the cecum into the ascending colon. Right hemicolectomy was performed and histopathological examination did not reveal any causative pathology.
DISCUSSION: Intussusception remains a rare condition in adults, representing 1–5% of bowel obstruction and accounting for 0.003–0.02% of all hospital admissions. Intussusception occurs more frequently in the small (50–80%) than in the large bowel (12–50%). It is estimated that approximately 90% of intussusceptions in adults are secondary to an anatomical or pathological condition, of which more than half are malignant. Idiopathic cases are the exception in adults. The clinical presentation of adult intussusception differs considerably from the classic pediatric presentation of abdominal pain, palpable mass, and blood per rectum, which is rarely seen in adults. A pre-operative CT-scan showed a 10 cm intussuscepted segment of right colon. Surgical resection was considered mandatory because of severe bowel obstruction, and the theoretical possibility of occult malignancy. This approach was vindicated by the presence of widespread ischemic lesions in the wall of the resected bowel, without any obvious lead point.
CONCLUSION: There are few reports in the medical literature of acute colonic intussusception occurring in the absence of organic cause in adults.

1. Introduction

We present a case of adult acute colonic intussusception (cecum intussuscepted in the ascending colon) occurring in the absence of organic cause and becoming evident from the classic pediatric triad of palpable mass (Fig. 1), abdominal pain and bloody mucoid stools.

2. Presentation of case

A 46-year-old woman with no prior medical history presented to the emergency room with an 8 h history of acute right iliac fossa pain and vomiting. The patient was hospitalised on suspicion of appendicitis. On admission, the patient was tender in the right iliac fossa without peritonism, and an abdominal X-ray showed mild intestinal distention in the pelvic area but no free air. She had an elevated white blood cell count ($14.17 \times 103/\mu l$) with 86% neutrophilia.

A few hours after admission she developed a fever (38 °C) and had worsening abdominal pain. An abdominal mass was now palpable, and she passed bloody mucoid stools. An urgent multislice CT-scan of the abdomen and pelvis showed colo-colic invagination of the right colon. The patient underwent an emergency midline laparotomy which confirmed dilated ileal loops obstructed by anterograde intussusception of the caecum into the ascending colon. After ineffectual attempts at manual reduction of the intussusception, an ileo-colic en bloc resection was performed of the intussuscepted right colon followed by manual two-layer side-to-side ileo-colic anastomosis. Macroscopic examination of the surgical specimen, which consisted of 7 cm of normal ileum in continuity with a 20 cm segment of large bowel, showed brownish edematous colonic mucosa (Figs. 2 and 3) within the intussusceptum extending from just beyond the ileocecal valve to 5 cm short

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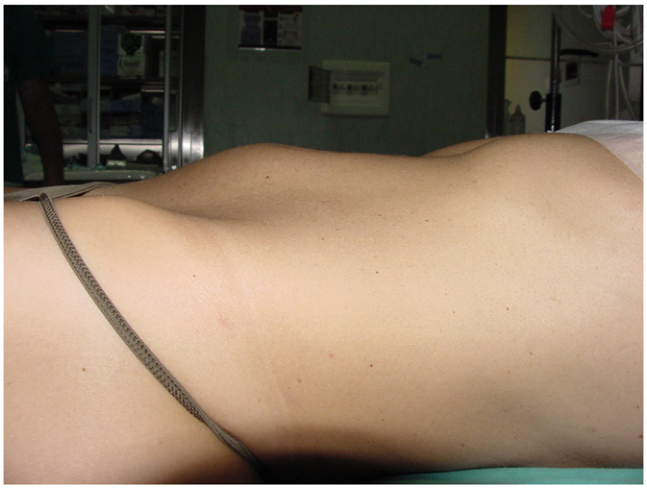

Fig. 1. Palpable mass.

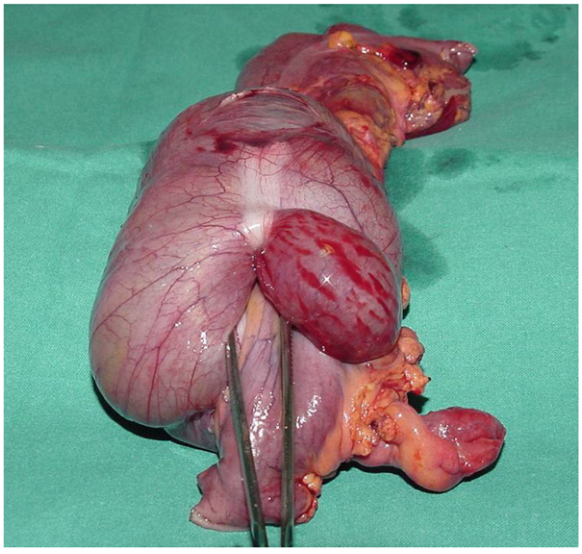

Fig. 2. Normal ileum in continuity with a segment of large bowel.

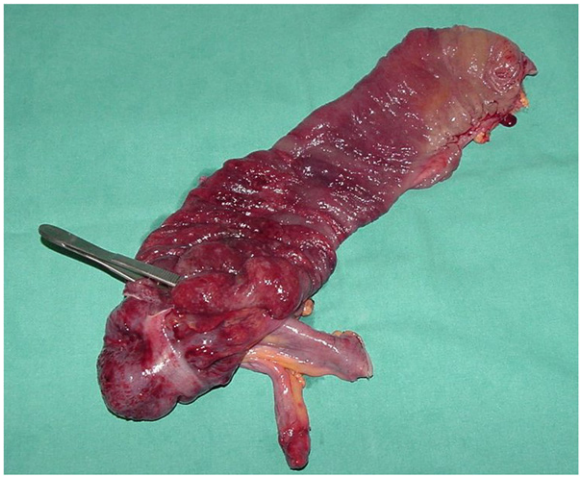

Fig. 3. Ischemic changes localized disorder following invagination.

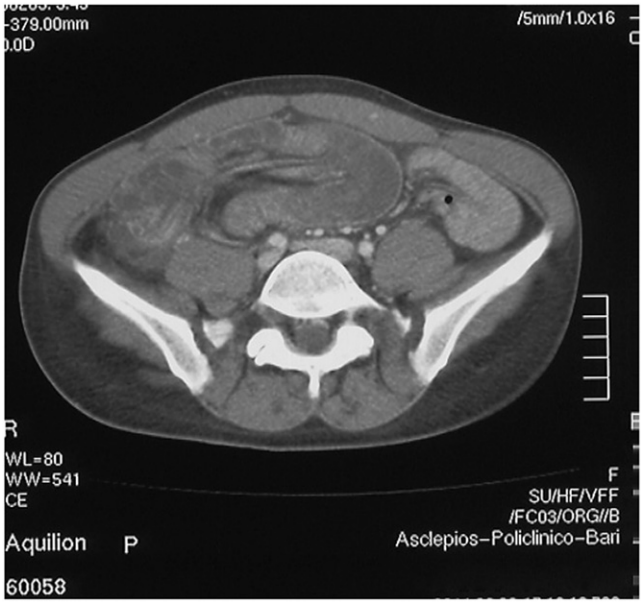

Fig. 4. Axial CT scan of colo-colonic intussusception.

of the distal surgical resection margin. Microscopic examination showed extensive areas of erosion/ulceration of the mucosa covered by material associated with fibrin-leukocyte extravasation and marked edema of the submucosa, findings consistent with ischemic changes secondary to the invagination. There was no evidence of malignancy or other disease and the cause of the intussusception was thus unknown. The postoperative course was normal and the patient was discharged from the hospital seven days later.

3. Discussion

Acute idiopathic colonic invagination in adults is so rare that most surgeons will not see a case, and those who do may find the presentation perplexing,[1] thus justifying this case report and a review of the options for management.[2] Intussusception is defined as the prolapse of a proximal bowel segment into a distal segment. It is a rare condition in adults, representing 1–5% of bowel obstruction and 0.003–0.02% of all hospital admissions.[1] The most common sites in the gastrointestinal for intussusception are the junctions between freely moving segments and those fixed by adhesions or the retroperitoneum. In adults the exact mechanism of invagination is unknown. It is believed that any lesion in the bowel wall or within the lumen that alters normal peristaltic activity is able to initiate the invagination. This theory is not valid for idiopathic cases without organic cause. Intussusceptions have been classified into four categories according to their locations: (1) entero-enteric, confined to the small bowel, (2) colo-colic, involving the large bowel only, (3) ileo-colic, defined as prolapse of the terminal ileum within the ascending colon and (4) ileo-cecal, where the ileo-cecal valve is the leading point of the intussusception and this may be difficult to distinguish from the ileo-colic variant.

Intussusception occurs more frequently in the small (50–80%) than in the large bowel (12–50%). It is estimated that approximately 90% of intussusceptions in adults are secondary to a pathological condition. The nature of the head of the invagination varies greatly. Approximately half of intussuscepting colonic lesions are malignant. Benign lesions account for 70–80% of small bowel intussusceptions.[3] Idiopathic cases are the exception in adults.[4] The clinical presentation of adult intussusception varies considerably, and may be acute, intermittent or chronic. The classic acute pediatric presentation of intussusception with abdominal pain, palpable mass and blood per rectum is rarely found in adults in

Fig. 5. Coronal CT scan of colo-colonic idiopathic intussusception.

whom the diagnosis may be difficult without imaging[5] of which CT plays a central role. The characteristic CT findings include: (1) a thickened segment of bowel due to invagination of the intussusceptum into the intussuscipiens; (2) an eccentrically located lucency representing the mesentery of the intussusceptum and intraluminal air sandwiched between the two layers of telescoped bowel; and (3) a mass, which usually represents the lead point[6] (Figs. 4 and 5). Traction on the mesenteric vascular arcade usually accompanies the eccentric lead point, identifying it as mesentery.

Substantial controversy exists regarding the surgical management of adult intussusception: the extent of surgical resection, en bloc resection without mass manipulation or selective reduction before resection are debated. Simple reduction without resection is acceptable in post-traumatic or postoperative intussusceptions. Pediatric age and small bowel localization are two cases where simple reduction is theoretically permissible if the bowel appears viable and no neoplastic lesion is evident. In cases where the bowel is inflamed or ischemic it is advisable not to attempt operative reduction. Colo-colic intussusception should be resected en bloc, without reduction, given the high likelihood of malignancy.[7,8] In our case a pre-operative CT-scan showed intussusception of a 10 cm segment of right colon without demonstrating any definite lead point. Intra-operatively we found cecum intussuscepted in the ascending colon without ileal or ileocecal valve involvement. Emergency en bloc ileo-colic resection was mandatory in the presence of severe bowel obstruction due to the intussusception. Furthermore, there was a theoretical risk of wall perforation due to manipulation of the colon, which might contain a malignant lesion, again making en bloc resection advisable. The surgical strategy was justified by the postoperative finding of ischemic lesions in the wall of the right colon.

4. Conclusion

Intussusception is uncommon in adults and few general surgeons see even one case in their surgical career. Despite the rarity of adult intussusception, surgeons need to be familiar with the possible surgical options. As adult spontaneous acute colonic intussusception without pathological cause is extremely rare in the literature, given the high likelihood of malignancy it is suggested that en-bloc resection without attempted reduction is mandatory in all adult colo-colic intussusceptions.

Conflict of interest statement

We have not any financial and personal relationships with other people or organizations that could inappropriately influence our work.

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We have no sponsor.

Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contributions

Antonio Margari is a First surgeon. Michele Amoruso contributed in writing of this article and also second surgeon and Stefania Praino is a third surgeon. Dario D'Abbicco contributed in data analysis of this article. Angelica Conversano contributed in data collections.

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